

FlexTop 2204 Temperature Transmitter

4...20 mA transmitter for Pt500 sensors and Resistance input

2-, 3- or 4-wire sensors

Accuracy better than 0.25°C (Pt500)

Sensor offset correction

Automatic/configurable cable resistance compensation (2-wire)

Sensor error detection

2-way configuration

Configurable damping and status indication

Engineering unit °C or °F

PC datalogging

Excellent temperature stability

Ex ia IIC T5/T6, ATEX II 1G

Ex nA II T5, ATEX II 3G



Description

FlexTop 2204 is a 4...20 mA loop-powered transmitter for Pt500 sensors and resistance inputs.

Either 2-, 3- or 4-wire sensors can be used. For 2-wire sensors an automatic balancing of the sensor cable resistance is possible with shorted sensor cable. The cable resistance can be manually configured as well.

Using a PC, the Windows-based Flex-Program and a FlexProgrammer configuring unit, the following parameters can be configured via the output connectors (2-way communication): TAG no., number of wires, cable resistance, error detection level, measuring range/unit, damping, offset and status indication.

The Flex-Program has a datalogging facility enabling the user to monitor measuring results or calibrate the measuring setup.

FlexTop 2204 is embedded in silicone which makes it resistant to humid environments.

FlexTop 2204, fitting into the DIN B housing, has a 6 mm center hole for quick sensor replacement. The spring loaded mounting screws ensure a safe fastening even in vibrating environments.

Technical Data

Input

Accuracy	< 0.25°C {2}
Sample time	< 0.7 sec.
Pt500 Standard	IEC/DIN/EN 60 751-2
RTD measuring current	0.15 mA, continuously
Sensor type	2-, 3- or 4-wires {1}
Sensor short detection	< -108°C
Sensor break detection	> 211°C
Error detection delay	< 10 sec.
Compensation for cable error	< 0.02°C/Ohm (3-wire) {2}
Cable resistance	Max. 20 Ohm /wire {1}
Measuring unit	°C or °F {1}
Protection	+/- 35 VDC
Suppression	50 and 60 Hz
Resolution	14 bit
Repeatability	< 0.1°C {2}
Ripple immunity	IEC 770 6.2.4.2
Offset Adjustment	Max. ± 10°C {1} {2}

Output

Signal span	4...20 mA, 2-wire
Accuracy	< 0.1% of signal span
Supply range	8...35 VDC
Ripple immunity	3 V _{rms}
Load equation	$R_L \leq (V_{cc} - 8)/23$ [kOhm]
Up/Down scaling limits	23 mA/3.5 mA {1}
Damping	0...30 sec. {1}
Protection	Reversed polarity protection
Resolution	12 bit
Effect of variations in supply voltage:	
Output current	0.01% per volt
TAG No.	15 characters {1}

Environmental conditions

Operating temperature	-40...85°C
Storage temperature	-55...90°C
Humidity	< 98% RH, cond. (IEC 68-2-38)
Vibrations	GL, test 2 (IEC 68-2-6)
Long-term test	IEC 770 6.3.2

EMC data

Generic standards	EN 61000-6-3, EN 61000-6-2
Product standards	EN 61326
NAMUR	NAMUR NE21

Approval Ex ia IIC T5/T6, ATEX II 1G

Supply range	8...28 VDC
Internal inductivity	$L_i \leq 10 \mu\text{H}$
Internal capacity	$C_i \leq 10 \text{nF}$
Barrier data	$U \leq 28 V_{dc}; I \leq 0.1 \text{ A}; P \leq 0.7 \text{ W}$
Temperature class	T1...T5: $-40 < T_{amb} < 85^\circ\text{C}$ T6: $-40 < T_{amb} < 50^\circ\text{C}$

Mechanical data

Dimensions	ø44 x 19 mm
Protection class	Housing: IP 40

Other data

Temperature drift	Typ. 0.003% per °C Max. 0.01% per °C
Power-on time	10 sec.

Test conditions

Configuration	0...100°C
Amb. temperature	23°C +/- 2°C
Power supply	24 VDC

Disposal of product and packing

According to national laws or by returning to Baumer

Notes

{1}	Configurable
{2}	Pt500

Measuring Ranges

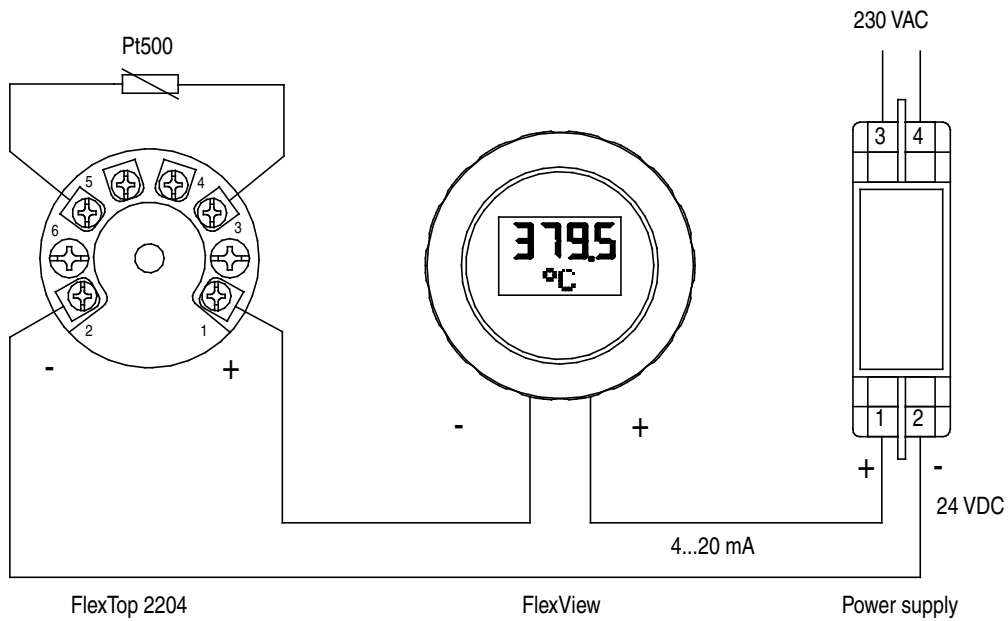
Type	Standard	Range	Min. span	Accuracy
Pt500	DIN/EN/IEC 60751	-100...160°C {2}	25°C	0.25°C
Lin. resistance		0...1000 Ohm	5 Ohm	1 Ohm

Ordering details - FlexTop 2204

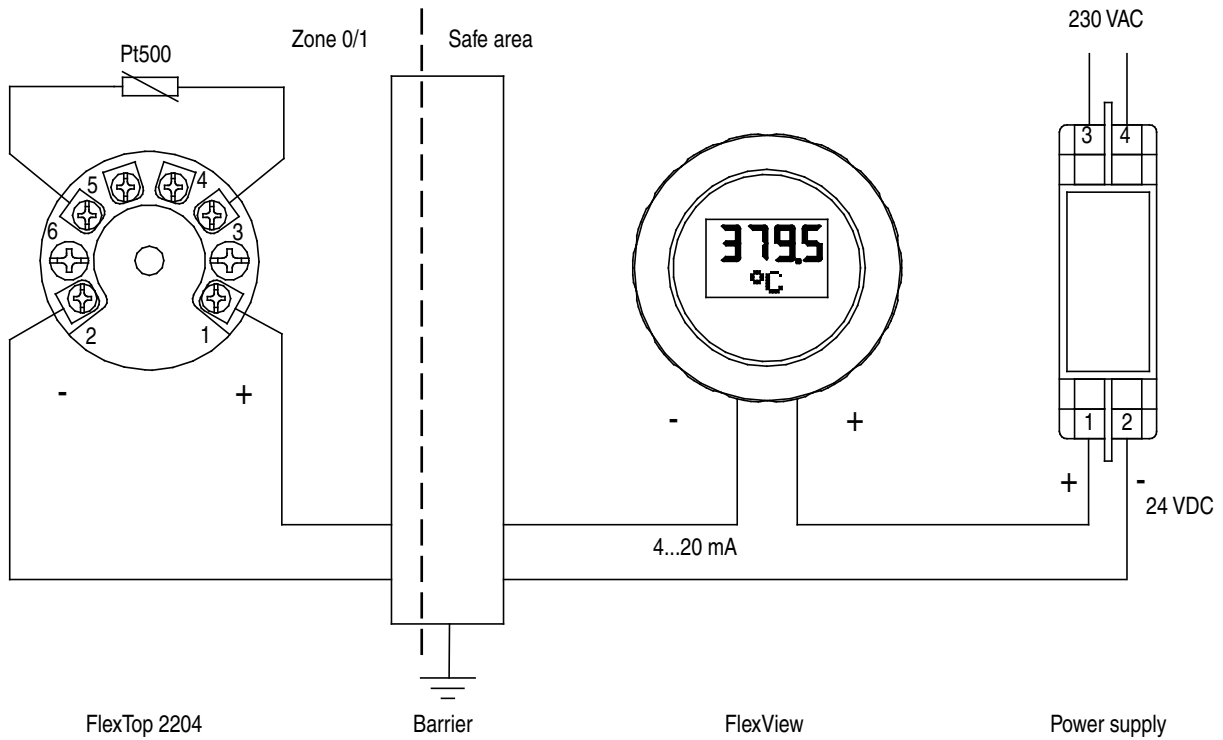
		2204 000x (x)
Type	8' Digit	
Not configured, standard safety	1	
Not configured, Ex ia IIC T5/T6, ATEX II 1G	2	
Not configured, Ex nA II 3G	3	
Configuration	9' Digit	
Configuration according to customer specifications (default is 0...120°C, 3-wire)	C	

Note: The FlexTop 2204 can be supplied in a 30 pcs. packing.
Please contact Baumer for further information.

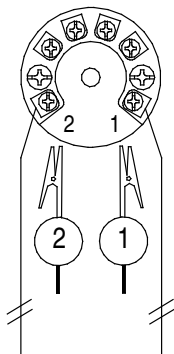
Non-Ex Application



Ex Application

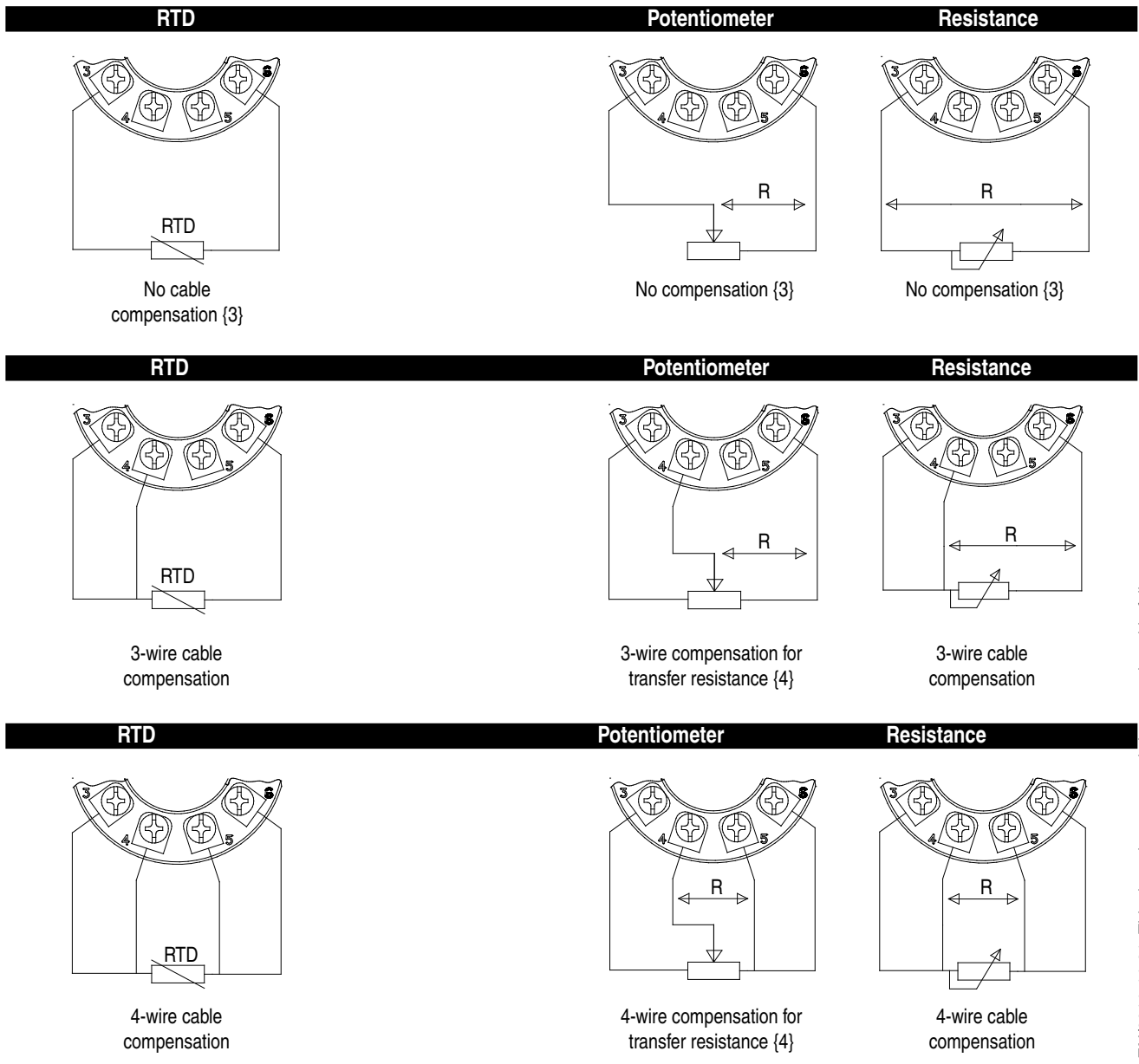


Configuration



Note:
Disconnect loop supply before connecting the FlexProgrammer to FlexTop 2204.

Electrical Installation



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Notes

- {3} Configurable compensation for cable resistance
- {4} Transfer resistance between element and wiper

Accessories



The FlexProgrammer 9701 is a dedicated tool to configure all Baumer configurable products.

Type No. 9701-0001 comprises:

- FlexProgrammer
- Cable with 2 alligator clips
- Cable from FlexProgrammer to M12 plug for TE2
- Cable from FlexProgrammer to M12 Plug for LFFS, LBFS, CPX
- USB cable
- CD with the FlexProgram software

Dimensional drawing

